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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,622	12/02/2003	Stefan Assmann	P03,0479	4948
7590 02/05/2008 SCHIFF HARDIN & WAITE Patent Department 6600 Sears Tower 233 South Wacker Drive Chicago, IL 60606			EXAMINER MEHTA, PARIKHA SOLANKI	
			ART UNIT 3737	PAPER NUMBER
			MAIL DATE 02/05/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,622

Applicant(s)

ASSMANN ET AL.

Examiner

Parikha S. Mehta

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 20 November 2007 have been fully considered but they are not persuasive.

Applicant argues that the motion-sensitized images of NessAiver (US Patent No. 5,329,925) do not constitute a movie of non-stationary tissue, for the reason that the reference requires a breath-hold (Remarks, p. 8). Examiner clarifies that the requirement of a breath-hold does not require that all tissue in the image be stationary; in this instance, it could be reasonably inferred that NessAiver ('925) merely uses breath-holding so that movement caused by respiration (i.e., lung movement) does not interfere with the observed movement of the heart.

Application additionally alleges that NessAiver ('925) does not use "only a time correspondence" to correlate the anatomical and speed-resolved images as is currently claimed by the instant application (Remarks, p. 8). In support of this contention, Applicant states that, in the inventive method, "there is no need to undertake any sorting of images and/or division of k-space into different portions, as seem to be necessary in the NessAiver reference." Conversely, Examiner contends that the pairing of images by time-stamping, as is done in the instant case, indeed constitutes sorting images. Furthermore, NessAiver ('925) states that "the views of a reference image are sorted...and stored in a frame reference memory for each imaged frame," and "the views of a motion sensitized frame are sorted by frame into corresponding ones of frame memories" (col. 6 lines 57-62). The commonly accepted definition of the term "frame," as set forth by Merriam Webster (<http://www.m-w.com>) and as is applicable to image processing, is "one picture of the series on a length of film", i.e. an image isolated from a series of images of a subject taken over a period of time. Accordingly, by sorting the reference and motion-sensitized images into frames before combining their image data, NessAiver ('925) does in fact correlate the images using only their time correspondence as claimed in the instant application.

Applicant also submits that "it is only by having had the benefit of first reading the Applicants' disclosure that the Examiner has been able to make sense of the NessAiver disclosure" (Remarks p. 9). It appears that Applicant is arguing impermissible hindsight, an argument which is relevant to rejections made under 35 U.S.C. 103(a), usually in instances where the Applicant is challenging the motivation to combine references. However, the instant claims were previously rejected under 35 U.S.C. 102(b).

Accordingly, Examiner is unsure exactly which portion of the previous rejection that Applicant is attempting to challenge, and as such Examiner is unable to fully respond this argument.

As Applicant's arguments are found to be wholly unpersuasive for at least the reasons set forth above, the previous rejection of all pending claims under 35 U.S.C. 102(b) in view of NessAiver ('925) is maintained and reiterated below, with minor modifications to address Applicant's amendments to the independent claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by NessAiver (US Patent No. 5,329,925), hereinafter NessAiver ('925).

Regarding claims 1, 5, 6, 11 and 12, NessAiver ('925) discloses a method, apparatus and computer-readable medium for blood flow measurement during the cardiac cycle, including means and steps for acquiring and displaying an overview image (col. 9 lines 59-60), quasi-simultaneously acquiring data for reference and motion sensitized images wherein non-stationary tissue is shown in successive, different positions, (col. 8 lines 31-34) , and generating and displaying the reference and motion sensitized image series in an integrated manner on a video monitor (col. 6 line 53 – col. 7 line 5). The reference and motion sensitized image data sets constitute anatomical and speed-resolved image data, respectively, as claimed in the instant application. The video means and steps of NessAiver ('925) constitute means and steps for displaying the image series as a movie as claimed in the instant application. As NessAiver ('925) correlates the motion-sensitized and reference image series without the use of any intervening image series, it can be said that the correlation ("integration") is direct as claimed. Furthermore, NessAiver ('925) states that all images are separated into frames, a term which is interpreted to mean an image selected from a series of images at a particular point in time, and thus the sorting and correlating by frame constitutes integration via time correspondence only as is currently claimed (co. 6 lines 57-62).

Regarding claims 2 and 3, NessAiver ('925) discloses means and steps for segmenting the image data (col. 5 lines 5-19).

Regarding claim 4, NessAiver ('925) states that the motion sensitized/speed-resolved images may be color coded (col. 8 lines 15-20).

Regarding claim 7, the method of NessAiver ('925) would inherently involve the operator visually observing the cine series on the display screen, as the step of displaying the series is not useful nor practical without the step of observing said series. The act of observing subsequently includes manual identification of the moving region on the display, as the operator would be able to see which regions of tissue are in motion and which regions are stationary by watching the series.

Regarding claim 8, the heart, as imaged by NessAiver ('925) can be reasonably interpreted to constitute a plurality of moving regions as claimed in the instant application.

Regarding claim 9, NessAiver ('025) discloses acquiring image data over a cardiac cycle (col. 8 lines 31-34).

Regarding claim 10, NessAiver ('925) discloses acquiring at least 20 images per cardiac cycle (col. 5 lines 5-19).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parikha S. Mehta whose telephone number is 571.272.3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Parikha S. Mehta

Examiner – Art Unit 3737



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